

LCS HARD RED SPRING WHEAT



2015 SEED GUIDE

Group Limagrain

an international farming community

orn of a desire to bring farmers together in order to improve quality and availability of seed supplies, Group Limagrain was founded as a farmers' cooperative in France in 1942. Today, still farmer-owned, the company has 8,500 employees, is the largest seed company in the European Union and the largest cereal seed producer in the world. The North American subsidiary, Limagrain Cereal Seeds, is Group Limagrain's first American operation for cereal breeding. In the United States, the company focuses on wheat research and the creation of new, improved varieties. Located in Fort Collins, Colorado, Limagrain Cereal Seeds' headquarters is centrally positioned to our research stations located in North Dakota, Washington, Indiana and Kansas.

Group Limagrain has strategically placed wheat breeding programs in every area of the world where HRSW is widely grown. Through shuttle breeding methodologies and the exchange of elite germplasm across the globe, farmers in the Northern Plains have access to the best genetics available in the world, delivered through the LCS brand. This network of breeding programs, spanning six continents and backed by cutting edge technology, is available to you now.



Group Limagrain: first and foremost a plant breeding company

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MEET THE TEAM

BREEDING STRATEGY



Hello, I am Drew Hendricker, LCS Sales Manager for the Northern Plains. We are excited to bring you our product guide for the 2015 season. Inside you will find technical information on each of our HRSW varieties and even a little taste of what is coming down the pipeline. Working with corn and soybeans for eight years has helped me bring fresh ideas and a new perspective to the ever-changing wheat industry. Many of the changes I saw in the corn and soybean business are happening now in wheat as well. It is an exciting time to be involved with wheat in the United States.

As the main contact for our LCS seed dealers, I have the honor of working with the best in the industry. Please let me know if you have any questions about our lineup of superior wheat genetics.

Drew Hendricker, Regional Sales Manager Contact: 970-231-8875/drew.hendricker@limagrain.com



Dr. Blake Cooper, Senior Wheat Breeder

Blake breeds spring wheat for the Northern Plains. He has been breeding new varieties of wheat and barley for the past 33 years. Prior to joining LCS, Blake spent a decade as the malt barley breeder for the Anheuser-Busch company.



Nate Cooling, Research Associate

Nate assists in performance trial creation, planting and management. He also manages early generation development and our Single Seed Descent facility in Fort Collins. Prior to joining LCS, Nate studied biology and was a student-athlete at Northern Michigan University.



Dr. Jim Peterson, Vice President of Research

Jim currently oversees all U.S. breeding operations. Prior to joining Limagrain Cereal Seeds, Jim spent 27 years in public sector wheat research, including 12 years as a professor of Wheat Breeding and Genetics at Oregon State University. Jim also served as Chair of the National Wheat Improvement Committee.



Frank Curtis, Chief Operating Officer

Frank is our Executive Vice President and COO. Frank has worked for Group Limagrain for the past 35 years and moved to the United States in 2010 to launch our company. Frank's roles within the Group have included plant breeding, field research, technical management, product development, distribution strategy, senior management, seed sales and marketing.



The Makings of Excellence

We inherited an excellent starting germplasm base through the acquisition of Trigen Seeds, created by Dr. Bob Romig. Dr. Romig was among the first to recognize that spring wheat materials from South America were a good fit and complement to U.S. spring wheat genetics. Because LCS is part of a global wheat effort, we have even greater access to useful germplasm from around the world today, which contributes heavily to our current HRSW strategy.

Early Generation Testing

In the early generation years of our program, we make carefully planned hand-crosses between current adapted varieties and international donor parents with unique traits of interest such as yield potential, straw strength, stress tolerance and disease resistance. Because spring wheat is capable of producing several generations in a relatively short amount of time, we speed up the development of new varieties by growing multiple generations each year. To that end, we have developed a customized Single Seed Descent (SSD) facility here in Fort Collins, capable of turning a generation in under 100 days.

Yield Testing

Prior to formal yield testing, the sheer number of lines we examine each year becomes staggering. Typically only the top 2-3% of the 50,000+ pre-yield stage lines move on to preliminary yield trials, where we try to mimic local on-farm growing conditions. At this stage, which can last three to four years, we aggressively narrow the number of lines down until only a handful of truly superior new varietal candidates remain. The large data sets amassed for these elite groups of candidates are compared to the most current popular varieties on the market.

The Importance of Speed

Bringing new genetics to market quickly is a vital factor in helping farmers capture maximum value on their operations. In our HRSW program, counter-season nurseries and speed breeding technologies, including SSD and Marker Assisted Selection (MAS), are now being used to bring varieties to market in nearly half the time it took breeding programs 15 years ago.

Dr. Blake Cooper, Senior Wheat Breeder

LCS HARD RED SPRING WHEAT

LCS Nitro



- Exceptional high-management yield potential
- Good all-round disease resistance package
- Medium-early maturity

Supercharge Your Wheat Acres

LCS Nitro is one of two new 2015 releases. Similar to LCS Iguacu, this variety has a South American pedigree and in yield trials, will show up in the highest yield class of dark northern spring wheat. LCS Nitro has a shorter height (3 inches under Faller) and very stiff straw; the best in our portfolio. This agronomic package allows growers interested in high management wheat a chance to mitigate the economic risk of growing high yielding and lower-protein varieties with a greatly reduced chance of lodging their crop. Along with great management characteristics, LCS Nitro has very good tolerance to leaf rust and a solid overall disease resistance package.

Dr. Blake Cooper, Senior Wheat Breeder

Agronomic Features

	LCS Nitro	Faller	RB07	Glenn
Yield Potential	Excellent	Excellent	Good	Average
Test Weight	Very Good	Good	Good	Excellent
Maturity	Medium	Medium-Late	Medium	Early
Plant Height	Short	Tall	Medium	Tall
Straw Strength	Excellent	Average	Good	Very Good
Tillering Capacity	SI. Below Avg.	SI. Below Average	SI. Below Average	SI. Below Average
Seed Size	Medium	Very Large	Medium	Medium

Disease Resistance



End-Use Quality

LCS Nitro has excellent loaf volume and internal crumb grain. Mix times meet or exceed industry preferred targets. Overall excellent quality.

Hayley Butler, Quality Manager

LCS Nitro - General Planting Information

- 1.4 to 1.6 million plants per acre is a general stand recommendation under normal planting conditions
- Total available nitrogen (# actual N/ac) of 2.75 times the expected yield is adequate under normal planting conditions
- · Good response to late applications of nitrogen
- Positive yield response to foliar applications of fungicide – scout and apply as necessary

LCS HARD RED SPRING WHEAT

LCS Pro



- Excellent protein content and end-use quality
- Dryland adaptation for North Dakota and Montana
- Good all-round disease resistance

A New Standard for Quality

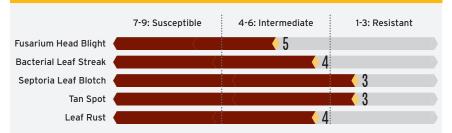
LCS Pro is another new release for 2015 that serves a specific set of growers. The agronomic package for this variety is a fit for western operations. With a taller plant height and good dryland yield potential, LCS Pro gives farmers in Montana and western North Dakota a new higher protein option. LCS Pro is on the mid-low end of the yield spectrum for LCS varieties, which would be expected from a high quality/high protein wheat. For growers in Montana who see their crops shipped west into the export market, the end-use quality specifications of LCS Pro are exceptional. For growers in higher yield environments, the use of a plant growth regulator could be beneficial.

Dr. Blake Cooper, Senior Wheat Breeder

Agronomic Features

	LCS Pro	Faller	RB07	Glenn
Yield Potential	Good	Excellent	Good	Average
Test Weight	Very Good	Good	Good	Excellent
Maturity	Medium	Medium-Late	Medium	Early
Plant Height	Tall	Tall	Medium	Tall
Straw Strength	Good	Average	Good	Very Good
Tillering Capacity	Average	SI. Below Average	SI. Below Average	SI. Below Average
Seed Size	Large	Very Large	Medium	Medium

Disease Resistance



End-Use Quality

LCS Pro has excellent loaf volume and internal crumb grain. Mix times meet or exceed industry preferred targets. Overall excellent quality, slightly lower loaf volume than LCS Nitro.

Hayley Butler, Quality Manager

LCS Pro - General Planting Information

- 1.25 million plants per acre is a general stand recommendation under normal planting conditions
- Under normal planting conditions, a total available nitrogen (# actual N/ac) of 2.5 times the expected yield is adequate
- Pre-plant nitrogen applications may be more beneficial than foliar applications, as protein content is naturally higher
- Positive yield response to foliar applications of fungicide – scout and apply as necessary
- In higher yielding environments the use of a plant growth regulator (PGR) can be beneficial for added straw strength

LCS Iguacu



- Targeted for high management
- Exceptional yield and test weight
- Unique resistance to fusarium head blight

Give Your Bottom Line a Global Advantage

LCS Iguacu (ee-gwa-soo) was originally developed for intense disease conditions in South America. LCS Iguacu's built-in genetic disease resistance makes it exceptionally well adapted to the Northern Plains. This new release also has excellent straw strength, which makes it a perfect high management wheat for growers looking to push fertility levels and dollar/acre return.

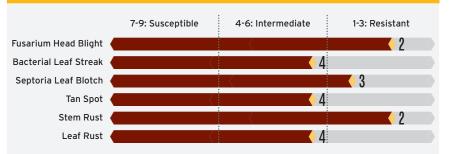
With moderate tillering capacity, this variety can benefit from slightly higher stand counts (~1.5 million plants/acre). Depending on crop conditions and price outlook, consider top dressing and foliar feeding additional levels of nitrogen during the growing season to raise grain protein content.

Dr. Blake Cooper, Senior Wheat Breeder

Agronomic Features

		LCS Iguacu	Faller	RB07	Glenn
	Yield Potential	Excellent	Excellent	Good	Average
ı	Test Weight	Excellent	Good	Good	Excellent
	Maturity	Medium- Late	Medium-Late	Medium	Early
	Plant Height	Medium	Tall	Medium	Tall
ı	Straw Strength	Excellent	Average	Good	Very Good
ı	Pre Harvest Sprouting	Very Good	Very Good	Very Good	Excellent
-	Tillering Capacity	SI. Below Avg.	SI. Below Average	SI. Below Average	SI. Below Average
	Seed Size	Medium- Large	Very Large	Medium	Medium

Disease Resistance



End-Use Quality

LCS Iguacu has the gluten strength and baking performance to meet industry-quality expectations for HRSW. It has good test weight, hard grain and good flour yields. At comparable grain protein levels, it has acceptable protein quality, good dough handling and consistent bread properties.

Hayley Butler, Quality Manager

LCS Iguacu - General Planting Information

- 1.4 to 1.6 million plants per acre is a general stand recommendation under normal planting conditions
- Total available nitrogen (# actual N/ac) of 2.75 times the expected yield is adequate under normal planting conditions
- A longer growing cycle would benefit from an earlier planting date
- Good response to late applications of nitrogen
- Only somewhat responsive to applications of foliar fungicide – scout and apply as necessary

LCS Breakaway



- High grain protein content
- Good yield potential
- Resistant to current strains of leaf rust

High Protein Content

LCS Breakaway is built on strong public genetics, with an earlier maturity, good straw strength and moderate resistance to a range of diseases. It is easy to recognize in the field by its intense, dark green foliage that translates into plentiful bushels of high test weight grain.

In 2014, growers who planted LCS Breakaway were rewarded with excellent returns for high levels of protein content. When diversifying wheat acres between different varieties, LCS Breakaway should be considered as a reliable higher protein wheat option.

Dr. Blake Cooper, Senior Wheat Breeder

Agronomic Features

	LCS Breakaway	Faller	RB07	Glenn
Yield Potential	Good	Excellent	Good	Average
Test Weight	Good	Good	Good	Excellent
Maturity	Early	Medium-Late	Medium	Early
Plant Height	Medium- Short	Tall	Medium	Tall
Straw Strength	Very Good	Average	Good	Very Good
Pre Harvest Sprouting	Good	Very Good	Very Good	Excellent
Tillering Capacity	Average	SI. Below Average	SI. Below Average	SI. Below Average
Seed Size	Medium	Very Large	Medium	Medium

Disease Resistance

	7-9: Susceptible	4-6: Intermediate	1-3: Resistant
Fusarium Head Blight	<	♦ 5	\Diamond
Bacterial Leaf Streak		<	3
Septoria Leaf Blotch	<	♦ 5	\Diamond
Tan Spot	<	♦ 5	\Diamond
Stem Rust		<	→ 2
Leaf Rust	<	4	

End-Use Quality

LCS Breakaway is similar to LCS Albany for dough mixing properties but has a slightly larger loaf volume. LCS Breakaway has good test weight, hard grain and good flour yields.

Hayley Butler, Quality Manager

LCS Breakaway - General Planting Information

- 1.25 to 1.4 million plants per acre is a general stand recommendation under normal planting conditions
- Pre-plant nitrogen applications may be more beneficial than foliar applications, as protein content is naturally higher
- Under normal planting conditions, a total available nitrogen (# actual N/ac) of 2.5 times the expected yield is adequate
- Moderately responsive to foliar fungicide applications

LCS Albany



- Consistently produces the highest yield available
- Excellent gross returns
- High tillering capacity

Exceptional Yield, Exceptional Profits!

LCS Albany has consistently topped yield trials each year since its release in 2009. This exceptional yield potential is due to a very high tillering capacity. LCS Albany is a full-season wheat but has a very rapid grain filling period, causing it to finish with other mid to mid-late varieties. LCS Albany is moderately resistant to Fusarium head blight, with a native (non Fhb-1) type of resistance.

Make LCS Albany your first variety to drill, using normal plant stands (~1.2 million plants/acre) and medium-high pre-plant fertility levels.

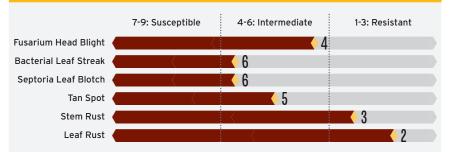
Consider additional levels of nitrogen to raise protein content through top dressing and/or late season foliar feeding.

Dr. Blake Cooper, Senior Wheat Breeder

Agronomic Features

	LCS Albany	Faller	RB07	Glenn
Yield Potential	Excellent	Excellent	Good	Average
Test Weight	Very Good	Good	Good	Excellent
Maturity	Full Season	Medium-Late	Medium	Early
Plant Height	Medium	Tall	Medium	Tall
Straw Strength	Good	Average	Good	Very Good
Pre Harvest Sprouting	Average	Very Good	Very Good	Excellent
Tillering Capacity	High	SI. Below Average	SI. Below Average	SI. Below Average
Seed Size	Medium- Small	Very Large	Medium	Medium

Disease Resistance



End-Use Quality

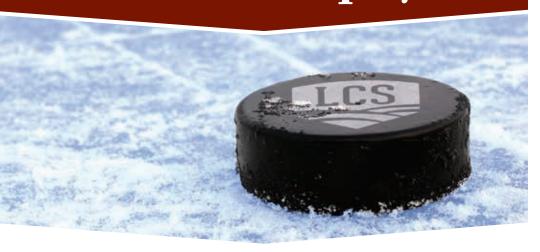
LCS Albany has good test weight, hard grain and good flour extraction. On average, its grain proteins tend to be lower but will make a good loaf of bread if not over-mixed.

Hayley Butler, Quality Manager

LCS Albany - General Planting Information

- 1.2 million plants per acre is a general stand recommendation under normal planting conditions
- Should be among the first varieties you plant due to a longer growing cycle
- Under normal planting conditions, a starting/pre-plant nitrogen (# actual N/ac) of 2.5 times the expected yield is adequate
- · Good response to late applications of nitrogen
- Moderately responsive to foliar applications of fungicide – scout and apply as necessary

LCS Powerplay



- Good yield potential
- Good protein content
- Medium-early maturity

Gives You the Advantage

Not sure whether to grow for yield or protein content? Just like its name implies, LCS Powerplay gives growers an advantage with the combination of high yield potential and good grain protein content. LCS Powerplay has medium maturity and moderate tillering capacity. LCS Powerplay would be considered an easier to manage wheat, similar to many leading varieties on the market.

In very high yield environments, the use of a plant growth regulator could be beneficial. LCS Powerplay is responsive to foliar fungicides applied around heading, especially if crop conditions, disease pressure and weather forecasts indicate they are justified.

Dr. Blake Cooper, Senior Wheat Breeder

Agronomic Features

	LCS Powerplay	Faller	RB07	Glenn
Yield Potential	Very Good	Excellent	Good	Average
Test Weight	Average	Good	Good	Excellent
Maturity	Medium	Medium-Late	Medium	Early
Plant Height	Medium	Tall	Medium	Tall
Straw Strength	Average	Average	Good	Very Good
Pre Harvest Sprouting	Excellent	Very Good	Very Good	Excellent
Tillering Capacity	Average	SI. Below Average	SI. Below Average	SI. Below Average
Seed Size	Medium	Very Large	Medium	Medium

Disease Resistance

	7-9: Susceptible	4-6: Intermediate	1-3: Resistant
Fusarium Head Blight		♦ 5	\Diamond
Bacterial Leaf Streak	<u> </u>	♦ 5	\Diamond
Septoria Leaf Blotch	<u> </u>	♦ 5	\Diamond
Tan Spot		♦ 5	\Diamond
Stem Rust		<	2
Leaf Rust		♦ 5	\Diamond

End-Use Quality

LCS Powerplay meets or exceeds the industry-preferred targets for HRSW. It has strong dough mixing properties, good loaf volume and superior crumb grain and color.

Hayley Butler, Quality Manager

LCS Powerplay - General Planting Information

- 1.25 million plants per acre is a general stand recommendation under normal planting conditions
- Under normal planting conditions, a total available nitrogen (# actual N/ac) of 2.5 times the expected yield is adequate
- Moderate response to late applications of nitrogen
- Positive yield reponse to foliar applications of fungicide – scout and apply as necessary

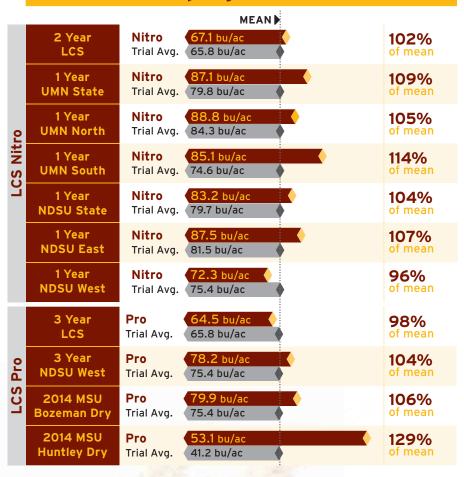
Hard Red Spring Wheat Yield Data

			MEAN D	
	3 Year LCS	Albany Trial Avg.	69.1 bu/ac 65.7 bu/ac	105% of mean
	3 Year UMN State	Albany Trial Avg.	85.0 bu/ac 74.6 bu/ac	114% of mean
ny	3 Year UMN North	Albany Trial Avg.	93.2 bu/ac 83.1 bu/ac	112% of mean
	3 Year UMN South	Albany Trial Avg.	75.6 bu/ac 64.8 bu/ac	117% of mean
LCS Albany	3 Year NDSU State	Albany Trial Avg.	67.8 bu/ac 63 bu/ac	108% of mean
CC	3 Year NDSU East	Albany Trial Avg.	80.3 bu/ac 74.4 bu/ac	108% of mean
	3 Year NDSU West	Albany Trial Avg.	61.0 bu/ac 56.8 bu/ac	107% of mean
	3 Year SDSU East	Albany Trial Avg.	62.7 bu/ac 58.0 bu/ac	108% of mean
	3 Year SDSU West	Albany Trial Avg.	46.0 bu/ac 46.0 bu/ac	100% of mean
	3 Year LCS	Powerplay Trial Avg.	65.1 bu/ac 65.7 bu/ac	99% of mean
	3 Year UMN State	Powerplay Trial Avg.	76.6 bu/ac 74.6 bu/ac	103% of mean
	3 Year UMN North	Powerplay Trial Avg.	86.2 bu/ac 83.1 bu/ac	104% of mean
.play	3 Year UMN South	Powerplay Trial Avg.	65.4 bu/ac 64.8 bu/ac	101% of mean
Powerplay	3 Year NDSU State	Powerplay Trial Avg.	66.5 bu/ac 63.0 bu/ac	106% of mean
CS	3 Year NDSU East	Powerplay Trial Avg.	77.3 bu/ac 74.4 bu/ac	104% of mean
	3 Year NDSU West	Powerplay Trial Avg.	60.6 bu/ac 66.8 bu/ac	107% of mean
	3 Year SDSU East	Powerplay Trial Avg.	57.3 bu/ac 58.0 bu/ac	99% of mean
0	3 Year SDSU West	Powerplay Trial Avg.	46.7 bu/ac 46.0 bu/ac	102% of mean

Hard Red Spring Wheat Yield Data

			MEAN	icia Data
	3 Year LCS	lguacu Trial Avg.	70.9 bu/ac 65.7 bu/ac	108% of mean
	2 Year UMN State	lguacu Trial Avg.	85.7 bu/ac 79.3 bu/ac	108% of mean
	2 Year UMN North	lguacu Trial Avg.	93.3 bu/ac 86.9 bu/ac	107% of mean
non	2 Year UMN South	lguacu Trial Avg.	77.0 bu/ac 70.6 bu/ac	109% of mean
LCS Iguacu	1 Year NDSU State	lguacu Trial Avg.	80.4 bu/ac 79.7 bu/ac	101% of mean
CC	1 Year NDSU East	lguacu Trial Avg.	87.4 bu/ac 82.7 bu/ac	106% of mean
	1 Year NDSU West	lguacu Trial Avg.	66.5 bu/ac 69.1 bu/ac	96% of mean
	2 Year SDSU East	lguacu Trial Avg.	68.0 bu/ac 62.5 bu/ac	109% of mean
	2 Year SDSU West	lguacu Trial Avg.	50.0 bu/ac 49.0 bu/ac	102% of mean
	3 Year LCS	Breakaway Trial Avg.	64.0 bu/ac 65.7 bu/ac	97% of mean
	3 Year UMN State	Breakaway Trial Avg.	73.0 bu/ac 74.6 bu/ac	98% of mean
	3 Year UMN North	Breakaway Trial Avg.	80.6 bu/ac 83.1 bu/ac	97% of mean
away	3 Year UMN South	Breakaway Trial Avg.	64.1 bu/ac 64.8 bu/ac	99% of mean
Breakaway	3 Year NDSU State	Breakaway Trial Avg.	62.2 bu/ac 63.0 bu/ac	99% of mean
FCS	3 Year NDSU East	Breakaway Trial Avg.	70.7 bu/ac 74.4 bu/ac	95% of mean
	3 Year NDSU West	Breakaway Trial Avg.	57.5 bu/ac 56.8 bu/ac	101% of mean
	2 Year SDSU East	Breakaway Trial Avg.	60.0 bu/ac 62.5 bu/ac	96% of mean
	2 Year SDSU West	Breakaway Trial Avg.	48.0 bu/ac 49.0 bu/ac	98% of mean

Hard Red Spring Wheat Yield Data



All available data at time of publication used to compile figures. Complete variety trial data sets are available online:

North Dakota State University

http://www.ag.ndsu.edu/varietytrials

University of Minnesota

http://www.maes.umn.edu/Research/Crop_Variety_Trials/

South Dakota State University

http://igrow.org/agronomy/wheat/spring-wheat-variety-trial-results/

Montana State University

http://plantsciences.montana.edu/cqlab/crops/index.html

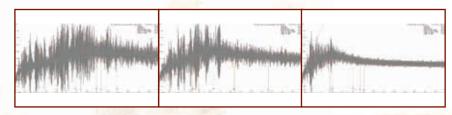
Hard Red Spring Wheat Protein Content

	LCS 2 Year Protein Content (%)	
LCS Average	♦ 14.2	% of Mean
LCS Albany	13.5	95%
LCS Breakaway	14.6	103%
LCS Iguacu	13.1	92%
LCS Nitro	13.4	94%
LCS Powerplay	13.8	97%
LCS Pro	14.7	104%
	UMN 2 Year Protein Content (%)	
LCS Average	14.1	% of Mean
LCS Albany	13.0	92%
LCS Breakaway	14.5	102%
LCS Iguacu	12.6	89%
LCS Powerplay	13.6	96%
	NDSU 2 Year Protein Content (%)	
LCS Average	13.8	% of Mean
LCS Albany	12.7	92%
LCS Breakaway	14.3	103%
LCS Iguacu	12.2	88%
LCS Powerplay	13.5	97%
	SDSU 2 Year Protein Content (%)	
LCS Average	15.1	% of Mean
LCS Albany	14.3	95%
LCS Breakaway	15.3	102%
LCS Iguacu	14.0	93%
LCS Powerplay	14.9	99%

Hard Wheat Quality Mixograph



A mixograph is used in the LCS quality lab to determine the quality and quantity of flour proteins in the mixing quality of potential new HRSW releases. Mixing tolerance and dough handling properties can be predicted with only 10 grams of flour, giving a guick estimate of a variety's gluten profile.



Excellent HRSW Quality

Average HRSW Quality

Poor HRSW Quality



LCS Iguacu

LCS Powerplay

LCS Nitro

Additional Quality Parameters



Loaf Volume

Loaf volume is considered to be the best overall predictor of hard wheat end-use quality. Varieties capable of producing higher volume bread loaves are in high demand from the milling and baking industries of the United States and abroad.



The correlation between seed size and the amount of usable flour millers are able to recover is a key factor in deciding to release a new variety. Pictured from left to right are plump, medium and thin sized seeds.









Poor Crumb

Crumb Structure

Crumb structure helps to determine the consistency of wheat quality. High quality wheat varieties produce an elongated, lacy and layered cell structure, while varieties with poor quality produce a more rounded, dense and heavy cell structure.



Determining variation in grain hardness of experimental hard wheat varieties is important because it is linked to the end-use quality.

Kernel characteristics such as hardness are important to know before the milling process so tempering can be done properly.



THE FUTURE OF LCS HRSW GENETICS

Coming Soon to a Field Near You



After years of intensive selection and careful evaluation in replicated yield trials by the breeder, the commercial team gets involved. We select the very best of our advanced experimental varieties for expanded yield and quality evaluations. At the same time, I begin planting seed purification and increase fields of these varieties to ensure there is an adequate supply of seed available to our dealers as soon as we release the variety. We don't want to leave elite genetics sitting on the shelf.



Brad Erker, Product Development Manager

Brad is our Product Development Manager, overseeing Breeder seed and Foundation seed production and contracting. He also works with Plant Variety Protection, Intellectual Property and Seed Certification of LCS varieties. Brad has been involved in the seed industry since 1993, with experience in agronomy, plant breeding and seed certification, having directed the Colorado Seed Program at Colorado State University for eight years prior to joining LCS.

LNR-0311 Highlights

- · Top-end yield potential in North Dakota
- · Higher protein than Faller
- Broad disease resistance package

LNR-0757 Highlights

- · Very high yield potential
- Exceptional end-use quality
- Taller plant height with medium maturity

LNR-08544 Highlights

- High yield potential
- Medium-late maturity western adaptation
- Taller with good straw strength

LNR-10147 Highlights

- Excellent yield stability consistently high over a large area
- Medium maturity
- Taller height with very good straw strength

LNR-10200 Highlights

- Exceptional South Dakota yield potential
- Yield stability over a large area
- Excellent resistance to bacterial leaf blight

LNR-10550 Highlights

- Good fit for western irrigated production
- Good fo<mark>liar dise</mark>ase resistance package
- Very good straw strength

LNR-10588 Highlights

- · Short, very stiff straw
- Unique South American genetics
- Full season maturity

Additional Resources

NDSU EXTENSION SERVICE

NDSU / UMN Variety Selection Tool	http://www.ag.ndsu.edu/varietyselectiontool/
Crop Rotations	http://www.ag.ndsu.edu/smallgrains/ crop-rotations
Fertilization Guidelines	http://www.ag.ndsu.edu/smallgrains/ fertility-management
Pest Management	http://www.ag.ndsu.edu/smallgrains/ pest-management



Planting Guidelines	http://www.extension.umn.edu/agriculture/ small-grains/planting/
Production Guide and Cropping Systems	http://www.extension.umn.edu/agriculture/ small-grains/production-guides-and-cropping-systems/
Plant Growth and Development	http://www.ext <mark>ension.umn</mark> .edu/agriculture/ small-grains/growth-and-development/
Fertilization Guidelines	http://www.extension.umn.edu/agriculture/ small-grains/nutrient-management/
Pest Management	http://www.extension.umn.edu/agriculture/ small-grains/pest-management/



iGrow Wheat Information	http://igrow.org/agronomy/wheat/
Disease Forecasting Model	http://climate.sdstate.edu/smallgrains/



Variety Selection Tool	http://www.sarc.montana.edu/php/varieties/
Herbicide Selection	http://www.sarc.montana.edu/php/weeds/
Plant Disease Guidelines	http://www.msuextension.org/plantpath/
High Plains Pest Management	http://wiki.bugwood.org/HPIPM:Main_Page

	Certified Seed Resources
Minnesota	http://docs.mncia.org/public/website/MCIA-Directory- 2015-sm-file.pdf
Montana	http://ag.montana.edu/msga/directories.html
North Dakota	http://www.nd.gov/seed/field_directory/cwht.asp
South Dakota	http://www.sdstate.edu/ps/sdcia/grower-directory.cfm
Weather Resources	
NDAWN	http://ndawn.ndsu.nodak.edu/
NDAWN Wheat GDD Calculator	http://ndawn.ndsu.nodak.edu/wheat-growing-degree- days.html
Minnesota Ag Weather	http://climate.umn.edu/doc/agwx.htm
South Dakota Ag Weather	http://climate.sdstate.edu/climate_site/ag_data.htm
National Resources	
Scab Smart	http://www.scabsmart.org/
U.S. Wheat Associates	http://www.uswheat.org/
National Association of Wheat Growers	http://www.wheatworld.org/
Wheat Foods Council	http://www.wheatfoods.org/



- W LimagrainCerealSeeds.com
- **■** LCS-info@Limagrain.com
- P (970) 498-2200





Dealer: